

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A data protection processing device that encrypts a bit stream for a protection of data security, the bit stream including a first byte, M second bytes, and N intermediate bytes between the first byte and the M second bytes, where M and N are positive integers, the data protection processing device comprising:

a determination unit that determines whether the first byte indicates a first value which reads continuous digital data in sequence and determines whether or not the read digital data forms numerical values having a predetermined pattern; and

a calculation unit that performs, using a second value, an arithmetic operation on the M second bytes when the determination unit determines that the first byte indicates the first value, which adds predetermined calculation values to or subtracts predetermined calculation values from either all of or a portion of a predetermined number of items of digital data within a specified range and in a specified calculation pattern that follow after digital data that is determined as a result of the determination by the determination unit to form numerical values having the predetermined pattern.

2. (Currently Amended) The data protection processing device according to claim 1, wherein the arithmetic operation is an addition or a subtraction to set a most significant bit of each of the M second bytes to 1, the calculation unit sequentially adds or subtracts calculation values of predetermined data patterns or byte patterns to or from digital data or data of a byte unit that is the object of the addition or subtraction.

3. (Currently Amended) The data protection processing device according to claim 1, wherein the first value, the second value, the M and the N are stored in the data protection processing device to be rewritten from the outside, further comprising:

a memory which stores information relating to predetermined numerical values or predetermined byte code, information relating to the predetermined number of items, and information relating to the predetermined calculation values; and

~~an information altering unit which alters at least one from among the information relating to the predetermined numerical values or the predetermined byte code, the information relating to the predetermined number of items, and the information relating to the predetermined calculation values that are stored in the memory.~~

4. (Currently Amended) [[A]] The data protection processing device according to claim 1, further comprising:

a first buffer that temporarily stores a plurality of bytes to be read out by the determination unit, the plurality of bytes being obtained from the bit stream by bit-to-byte conversion; and

~~a holding unit which temporarily holds binary data input serially as data of a byte unit;~~

~~a determination unit which sequentially reads the data of a byte unit from the holding unit and determines whether or not the read data of a byte unit forms a predetermined byte code;~~

~~a calculation unit which adds predetermined calculation values to or subtracts predetermined calculation values from either all of or a portion of a predetermined number of items of data of a byte unit within a specified range and in a specified calculation pattern that follow after data of a byte unit that is determined as a result of the determination by the determination unit to form the predetermined byte code; and~~

a second buffer that temporarily stores the first byte, the N intermediate bytes, and the M second bytes that have been subjected to the arithmetic operation.

~~an output unit which serially outputs data of a byte unit calculated by the calculation unit as data of a bit unit.~~

Claims 5. - 6. (Canceled).

7. (Currently Amended) [[A]] The data protection processing device according to claim 1, further comprising:

~~a first determination unit which sequentially reads transmission data or received data forming continuous digital data and determines whether or not the read transmission data or received data contains digital data having a predetermined numerical value;~~

~~a first calculation unit which adds predetermined calculation values to or subtracts predetermined calculation values from either all of or a portion of a predetermined number of~~

~~items of digital data within a specified range and in a specified calculation pattern that follow after the digital data having the predetermined numerical value when it is determined by the first determination unit that the transmission data or received data contains digital data having a predetermined numerical value;~~

a receiving unit that receives, from another data protection processing device, another bit stream including a third byte, M fourth bytes, and N intermediate bytes between the third byte and the M fourth bytes;

a second determination unit that determines whether the third byte indicates the first value ~~which sequentially reads transmission data or received data forming continuous digital data and determines whether or not the read transmission data or received data contains digital data having a predetermined numerical value; and~~

a second calculation unit that performs, using the second value, a second arithmetic operation on the M fourth bytes when the second determination unit determines that the third byte indicates the first value. ~~which subtracts the predetermined calculation values from or adds the predetermined calculation values to either all of or a portion of a predetermined number of items of digital data that are continuous after the digital data having the predetermined numerical value when it is determined by the second determination unit that the transmission data or received data contains digital data having a predetermined numerical value.~~

Claims 8. - 9. (Canceled).

10. (Currently Amended) A modem device comprising:

a data compression unit that ~~which~~ performs data compression and outputs a compressed bit stream including a first byte, M second bytes, and N intermediate bytes between the first byte and the M second bytes, where M and N are positive integers ~~processing on digital data to be transmitted based on a normalized data compression standard;~~

a first determination unit that determines whether the first byte indicates a first value ~~which converts digital data that has undergone data compression processing by the data compression unit into data of a byte unit, sequentially reads the converted data of a byte unit, and determines whether or not the read data of a byte unit forms a predetermined byte code;~~

a first calculation unit that performs, using a second value, a first arithmetic operation on the M second bytes when the first determination unit determines that the first byte

~~indicates the first value which adds predetermined calculation values to or subtracts predetermined calculation values from either all of or a portion of a predetermined number of items of data of a byte unit within a specified range and in a specified calculation pattern that follow after data of a byte unit that is determined as a result of the determination by the first determination unit to form the predetermined byte code;~~

~~a transmitting first output unit that transmits the first byte, the N intermediate bytes, and the M second bytes that have been subjected to the first arithmetic operation which outputs the data of a byte unit added or subtracted in the first calculation unit;~~

~~a receiving unit that receives another compressed bit stream including a third byte, M fourth bytes, and N intermediate bytes between the third byte and the M fourth bytes;~~

~~a second determination unit that determines whether the third byte indicates the first value which converts received digital data into data of a byte unit, sequentially reads the converted data of a byte unit, and determines whether or not the read data of a byte unit forms a predetermined byte code;~~

~~a second calculation unit that performs, using the second value, a second arithmetic operation on the M fourth bytes when the second determination unit determines that the third byte indicates the first value which adds the predetermined calculation values to or subtracts the predetermined calculation values from either all of or a portion of a predetermined number of items of data of a byte unit within a specified range and in a specified calculation pattern that follow after data of a byte unit that is determined as a result of the determination by the second determination unit to form the predetermined byte code; and~~

~~a data decompression unit that performs data decompression on the third byte, the N intermediate bytes, and the M fourth bytes that have been subjected to the second arithmetic operation, which converts data of a byte unit subtracted or added in the second calculation unit into digital data and performs data decompression processing on the converted digital data based on the data decompression standard.~~

11. (Currently Amended) The modem device according to claim 10, wherein the ~~first and second calculation units sequentially add or subtract calculation values of predetermined data patterns or byte patterns to or from digital data or data of a byte unit that is the object of the addition or subtraction.~~

the first arithmetic operation is an addition or a subtraction to set a most significant bit of each of the M second bytes to 1, and

the second arithmetic operation is an addition when the first arithmetic operation is the subtraction, and a subtraction when the first arithmetic operation is the addition.

12. (Currently Amended) The modem device according to claim 10, wherein the ~~modem device further comprises:~~

~~a memory which stores information relating to predetermined numerical values or predetermined byte code, information relating to the predetermined number of items, and information relating to the predetermined calculation values; and~~

~~an information altering unit which alters at least one from among the information relating to the predetermined numerical values or the predetermined byte code, the information relating to the predetermined number of items, and the information relating to the predetermined calculation values that are stored in the memory.~~

the first value, the second value, the M and the N are stored in the modem device to be rewritten from the outside.

13. (Currently Amended) A data communications system comprising:

a data transmitting device that encrypts a bit stream for a protection of data security, the bit stream including a first byte, M second bytes, and N intermediate bytes between the first byte and the M second bytes, where M and N are positive integers; and

a data receiving device that ~~which~~ receives encrypted bit stream from data transmitted by the data transmitting device,

wherein the data transmitting device includes

a first determination unit that determines whether the first byte indicates a first value ~~which reads transmission data in sequence and determines whether or not the read data includes digital data having a predetermined numerical value; and~~

a first calculation unit that performs, using a second value, a first arithmetic operation on the M second bytes when the first determination unit determines that the first byte indicates the first value, ~~which adds predetermined calculation values to or subtracts predetermined calculation values from either all of or a portion of a predetermined number of items of digital data within a specified range and in a specified calculation pattern that follow after the digital data having the predetermined numerical value when it is determined by the first determination unit that the data contains digital data having a predetermined numerical value; and~~

~~a transmitting unit which transmits data that has undergone calculation processing by the first calculation unit, and~~

wherein the data receiving device includes

~~a receiving unit which receives data transmitted by the data transmitting unit;~~

~~a second determination unit that determines whether the first byte indicates the first value which reads in sequence data received by the data receiving unit and determines whether or not the read data includes digital data having the predetermined numerical value;~~
and

~~a second calculation unit that performs, using the second value, a second arithmetic operation on the M second bytes when the second determination unit determines that the first byte indicates the first value. which adds the predetermined calculation values to or subtracts the predetermined calculation values from either all of or a portion of the predetermined number of items of digital data within a specified range and in a specified calculation pattern that follow after the digital data having the predetermined numerical value when it is determined by the second determination unit that the data contains digital data having a predetermined numerical value.~~

14. Canceled.

15. (Currently Amended) The data communications system according to claim 13, ~~wherein the first and second calculation units sequentially add or subtract calculation values of predetermined data patterns or byte patterns to or from digital data or data of a byte unit that is the object of the addition or subtraction.~~

the first arithmetic operation is an addition or a subtraction to set a most significant bit of each of the M second bytes to 1, and

the second arithmetic operation is an addition when the first arithmetic operation is the subtraction, and a subtraction when the first arithmetic operation is the addition.

16. (Currently Amended) The data communications system according to claim 13, ~~wherein the data transmitting device and data receiving device further comprises:~~

~~a memory which stores information relating to predetermined numerical values or predetermined byte code, information relating to the predetermined number of items, and information relating to the predetermined calculation values; and~~

~~an information altering unit which alters at least one from among the information relating to the predetermined numerical values or the predetermined byte code, the information relating to the predetermined number of items, and the information relating to the predetermined calculation values that are stored in the memory.~~

the first value, the second value, the M and the N are stored in each of the data transmitting device and the data receiving device to be rewritten from the outside.

17. (Currently Amended) A data protection processing method of encrypting a bit stream for a protection of data security, the bit stream including a first byte, M second bytes, and N intermediate bytes between the first byte and the M second bytes, where M and N are positive integers, the data protection processing method comprising:

~~a reading step of reading in sequence continuous digital data;~~

~~a determination processing step of determining whether the first byte indicates a first value or not digital data read in the reading step forms numerical values having a predetermined pattern; and~~

~~a calculation processing step of adding predetermined calculation values to or subtracting predetermined calculation values from either all of or a portion of a predetermined number of items of digital data within a specified range and in a specified calculation pattern that follow after digital data that is determined as a result of the determination in the determination processing step to form numerical values having the predetermined pattern.~~

performing, using a second value, an arithmetic operation on the M second bytes when it is determined at the determining that the first byte indicates the first value.

18. (Currently Amended) The data protection processing method according to claim 17, wherein the arithmetic operation is an addition or a subtraction to set a most significant bit of each of the M second bytes to 1, ~~in the calculation processing step, calculation values of predetermined data patterns or byte patterns are sequentially added to or subtracted from digital data or data of a byte unit that is the object of the addition or subtraction.~~

19. (Currently Amended) The data protection processing method according to claim 17, wherein the first value, the second value, the M and the N are stored in a rewritable memory to be rewritten from the outside ~~further comprising an information altering step of~~

~~altering at least one of information relating to predetermined numerical values or predetermined byte code, information relating to the predetermined number of items, and information relating to the predetermined calculation values.~~

20. (Currently Amended) [[A]] The data protection processing method according to claim 17, further comprising:

temporarily storing, in a first buffer, a plurality of bytes to be read out at the determining, the bytes being obtained from the bit stream by bit-to-byte conversion; and

~~a reading step of temporarily holding binary data input serially as data of a byte unit and reading the data of a byte unit in sequence;~~

~~a determination processing step of determining whether or not the data of a byte unit read in the reading step forms a predetermined byte code;~~

~~a calculation processing step of adding predetermined calculation values to or subtracting predetermined calculation values from either all of or a portion of a predetermined number of items of data of a byte unit within a specified range and in a specified calculation pattern that follow after data of a byte unit that is determined as a result of the determination in the determination processing step to form the predetermined byte code; and~~

~~an output step of temporarily holding data of a byte unit calculated in the calculation processing step as data of a bit unit and serially outputting the data of a bit unit.~~

temporarily storing, in a second buffer, the first byte, the N intermediate bytes, and the M second bytes that have been subjected to the arithmetic operation.

Claims 21. -25. (Canceled).

26. (Currently Amended) [[A]] The data protection processing method according to claim 17, further comprising:

receiving another bit stream including a third byte, M fourth bytes, and N intermediate bytes between the third byte and the M fourth bytes;

determining whether the third byte indicates the first value; and

performing, using the second value, a second arithmetic operation on the M fourth bytes when it is determined at the determining that the third byte indicates the first value.

~~a reading step of sequentially reading transmission data or received data forming continuous digital data;~~

~~a first determination processing step of determining whether or not the transmission data or received data read in the reading step contains digital data having a predetermined numerical value;~~

~~a first calculation processing step of adding predetermined calculation values to or subtracting predetermined calculation values from either all of or a portion of a predetermined number of items of digital data of a byte unit within a specified range and in a specified calculation pattern that follow after the digital data having the predetermined numerical value when it is determined in the first determination processing step that the transmission data or received data contains digital data having a predetermined numerical value;~~

~~a second determination processing step of sequentially reading received data or transmission data forming continuous digital data and determining whether or not the read received data or transmission data contains digital data having a predetermined numerical value; and~~

~~a second calculation processing step of adding predetermined calculation values to or subtracting predetermined calculation values from either all of or a portion of a predetermined number of items of digital data of a byte unit within a specified range and in a specified calculation pattern that follow after the digital data having the predetermined numerical value when it is determined in the second determination processing step that the received data or transmission data contains digital data having a predetermined numerical value.~~

Claims 27. - 34. (Canceled).

35. (New) The data protection device according to claim 1, wherein, when the first byte indicates the first value, the M second bytes correspond to an adding range, the first byte corresponds to an adding condition, and the second value corresponds to a protection key value.

36. (New) The data protection method according to claim 17, wherein, when the first byte indicates the first value, the M second bytes correspond to an adding range, the first byte corresponds to an adding condition, and the second value corresponds to a protection key value.